

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have cancelled claims 1-17, without prejudice and submit herewith claims 18-25 for consideration. No new matter has been added. New claims 18-25 are intended to more specifically claim the intended subject matter of the present invention as well as further distinguish the present invention over the cited prior art references.

For the reasons set forth below, it is respectfully submitted that new claims 18-25 are patentable over the cited prior art references.

II. New Claims 18-25

As recited by the newly added claims 18-25, the present invention relates to in-part a method of positioning a mobile station in a cellular network. Specifically, with regard to claim 1, the claimed method comprises the steps of: (1) having a base station inform (in its downlink signal) the mobile station of the identity and window of detection of positioning signals; (2) having the base station page the positioning elements within the given cell to transmit positioning signals; and (3) having the base station receive a report from the mobile station (in its uplink signal) detailing the results of the detection of the positioning signals by the mobile station. From this information, it is possible to determine the location of the mobile station.

Continuing with the other claims, new claims 21-23 relate more specifically to the positioning element, and recites in-part that the positioning element synchronizes with downlink transmissions of the controlling base station, and transmits positioning signals

Serial No.: 09/873,796

at predictable times following receipt of the paging signal from the controlling base station. Finally, new claims 24 and 25 are directed to the mobile station and recite that the mobile station is made aware of the transmission of the positioning signals to be detected by the mobile station in advance of the receipt of the positioning signals at the mobile station.

As explained in more detail in the specification, the present invention provides important advantages over the cited prior art references due to the fact that the positioning elements in the current invention do not require an absolute timing reference nor do the signals of the positioning elements need to be monitored. As such, as neither monitoring of the positioning elements nor an absolute reference is required, a position element may, for example, be placed inside a building where it can only "hear" one base station and would likely not be "heard" by any fixed network elements. The foregoing results from the present invention utilizing the base station to page the positioning element when necessary to generate positioning signals. More specifically, for example, as detailed in the flowchart of Fig. 6 of the specification, the mobile station listens to the base station and knows that a position signal will be generated at a predictable time following the receipt of a paging signal. Thus, no absolute timing reference is necessary.

Turning to the cited prior art references, it is respectfully submitted that neither USP No. 5,600,706 to Dunn nor USP No. 6,201,803 to Munday disclose or suggest the method and system of the present invention recited by new claims 18-25. Specifically, at a minimum, neither Dunn nor Munday disclose or suggest the paging of positional elements and the subsequent generation of positioning signals at a predetermined

Serial No.: 09/873,796

amount of time thereafter. Indeed, it would appear that both Dunn and Munday require the use of absolute timing references, which is a requirement eliminated by the method and system of the present invention.

Accordingly, as anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference. *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983), for at least the foregoing reasons, it is respectfully submitted that neither Dunn nor Munday anticipate any of claims 18-25.

III. Request For Notice Of Allowance

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

Respectfully submitted,

McDERMOTT, WILL & EMERY

Date: 4/28/03

By: 

Michael E. Fogarty
Registration No. 36,139

600 13th Street, N.W. , Suite 1200
Washington, D.C. 20005-3096
Telephone: 202-756-8000
Facsimile: 202-756-8087
WDC99 749798-1.063186.0014

Serial No.: 09/873,796

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1-17 have been cancelled without prejudice, and new claims 18-25 have been added as follows:

--18. (New) A method of positioning a mobile station in a cellular network wherein a controlling base station controls communications within a cell and wherein said controlling base station performs the steps of:

informing in a downlink communication with a mobile station, the identities and windows for detection of positioning signals and;

paging positioning elements within the cell to transmit said positioning signals;
and

receiving a report from the mobile station in its uplink communication on the results of detection.

19. (New) A method of positioning a mobile station as in claim 18 in which, where the reported results of detection are insufficient, the positioning elements are reconfigured by the base station by re-paging of a positioning element within a predetermined time.

20. (New) A method of positioning a mobile station as in claim 19 in which the reconfiguration comprises the positioning element re-transmitting its positioning signal at the next allotted time with a power level increased by a predetermined amount.

Serial No.: 09/873,796

21. (New) A positioning element for use in positioning mobile stations communicating with a controlling base station of a cellular network via an air interface and in which the positioning element;

synchronizes with downlink transmissions of the controlling base station, and transmits positioning signals at predictable times following receipt of a paging signal from the controlling base station.

22. (New) A positioning element for use in positioning mobile stations communicating with a controlling base station of a cellular network via the air interface and in which the positioning element;

synchronizes with downlink transmissions of the controlling base station, and transmits positioning signals periodically at predetermined times relative to the time of detection by said positioning elements of a signal or part of a signal transmitted by said base station.

23. (New) A positioning element as in claims 21 or 22 for use in a CDMA cellular network and in which the positioning signals comprise spreading codes uniquely associated with each positioning element.

24. (New) A mobile station for communicating with a cellular network and in which the mobile station synchronizes with downlink transmissions from a controlling base station and detects positioning signals from positioning elements synchronized to

Serial No.: 09/873,796

said downlink transmissions and wherein the timing intervals and character of the positioning signals to be detected are signalled to the mobile station from the controlling base station in advance of receipt of the positioning signals at the mobile station.

25. (New) A mobile station as in claim 24 operating with a CDMA cellular network in which the results of detection of positioning signals are reported to the controlling base station in uplink communication with the base station.—